Proposed Amendments to HAR 11-54-1
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-1 Definitions. As used in this chapter:

["Ambient conditions" means the water quality conditions that would occur in the receiving waters if these waters were not influenced by the proposed new human activity.]

"Amphidromous" means aquatic life that migrate to and from the sea, but not specifically for reproductive purposes. Amphidromous aquatic life in Hawai‘ian streams are confined to fresh waters as adults, but their larval stages are partially or entirely spent in the ocean as part of the zooplankton.

"Anchialine pools" means coastal bodies of standing waters that have no surface connections to the ocean but display both tidal fluctuations and salinity ranges characteristic of fresh and brackish waters, indicating the presence of subsurface connections to the watertable and ocean. Anchialine pools are located in porous substrata (recent lava or limestone) and often contain a distinctive assemblage of native aquatic life. Deeper anchialine pools may display salinity stratification, and some shallow pools may contain standing water only on the highest tides.

"Aquatic life" means "any type or species of mammal, fish, amphibian, reptile, mollusk, crustacean, arthropod, invertebrate, coral, or other animal that inhabits the freshwater or marine environment and includes any part, product, egg, or offspring thereof; or freshwater or marine plants, including, seeds, roots, products, and other parts thereof" (section 187A-1, HRS).

"Best degree of treatment or control" means that treatment or control which is required by applicable statutes and regulations of the State of Hawai‘i and the Federal Water Pollution Control Act, as amended, (33 USC 1251, et seq.) or which is otherwise specified by the director considering technology or management practices currently available in relation to the public interest.

"Brackish waters" means waters with dissolved inorganic ion concentrations (salinity) greater than (>) 0.5 parts per thousand (ppt), but less than (<) [thirty-two] or equal to thirty(30.0) parts per thousand (ppt). All brackish waters are classified as marine waters.

"Coastal waters," means "all waters surrounding the islands of the State from the coast of any island to a point three miles seaward from the coast, and, in the case of streams, rivers, and drainage ditches, to a point three miles seaward from their point of discharge into the sea and includes those brackish waters, fresh waters and salt waters that are subject to the ebb and flow of the tide" (section 342D-1, HRS). For the purposes of this chapter, "coastal waters" include brackish estuaries, brackish coastal waters, and saline coastal waters. Transitional oceanic waters are found seaward of saline coastal waters, where the salinity ranges from is 34.9 ppt to 35.5 ppt.

"Coastal wetlands" means natural or man-made ponds and marshes having variable salinity, basin limits, and permanence. These wetlands usually adjoin the coastline and may be subject

to tidal, seasonal, or perennial flooding. Coastal wetlands are generally maintained by surface and subterranean sources of fresh [and salt] water. Many natural coastal wetlands have been modified significantly by man and are characterized by introduced aquatic life. Coastal wetlands include, but are not limited to, salt marshes, open ponds, mudflats, man-made or natural waterbird refuges, isolated seasonal lakes and mangrove flats.

"Control stations" means georeferenced stations, defined as points in the water column where water samples are collected and/or other measurements are taken. "Designated uses" are those uses specified in water quality standards for each water body or segment whether or not they are being attained (40 CFR 131.3(f))

"Department" means department of health, State of Hawai‘i.

"Developed estuaries" means volumes of brackish coastal waters in well-defined basins constructed by man or otherwise highly modified from their natural state. Developed estuaries include, but are not limited to, dredged and revetted stream termini.

"Director" means the director of health, State of Hawai‘i, or the director's duly authorized agent.

"Ditches and flumes" means fresh waters flowing [continuously] in artificial channels. They are used mainly for the purpose of irrigation and usually receive water from stream diversions. Ditches and flumes may be inflowing (carry water to reservoirs or user areas) or outflowing (drain water from reservoirs or user areas).

"Drainage basin" or "watershed" means the region or area drained by a stream [or river] system.

"Elevated wetlands" means natural freshwater wetlands located above 100 m (330 ft) elevation. They are generally found in undisturbed areas, mainly in remote uplands and forest reserves with high rainfall. Elevated wetlands include upland bogs, marshes, swamps, and associated ponds and pools.

"Estuaries" means characteristically brackish coastal waters in well-defined basins with a continuous or seasonal surface connection to the ocean that allows entry of marine fauna. Estuaries may be either natural or developed.

"Existing uses" means those uses actually attained in the water body on or after November 28, 1975 whether or not they are included in the water quality standards.

"Flowing springs and seeps" means perennial, relatively constant fresh water flows not in distinct channels, in which the water emanates from elevated aquifers as wet films or trickles over rock surfaces. They are found typically as natural occurrences along rock faces or banks of deeply incised streams, and artificially along road cuts.

"Flowing waters" means fresh waters flowing unidirectionally down altitudinal gradients. These waters may or may not be confined in distinct channels. Flowing waters include streams, flowing springs and seeps and ditches and flumes.

"Fresh waters" means all waters with a dissolved inorganic ion concentration of less than or equal to (≤) 0.5 parts per

thousand (ppt). All fresh waters are classified as inland waters.

"Geometric mean (geomean)" means the central tendency in a set of non-normally distributed data. The geometric mean is calculated by taking either: (1) the antilog of the arithmetic average of the sum of the natural logs (ln) of a column of single parameter measurements at a station; or (2) the nth root of the product of all individual data values in a column of single parameter measurements at a station. For the purposes of this chapter, geometric means shall be computed only for a sample size (n) of greater than or equal to ten (10) parameter measurements per sampling station or control station.

"Hydric soil" means soil that, in its undrained condition, is saturated, flooded, or ponded and develops conditions that favor the growth and regeneration of hydrophytic vegetation.

"Hydrophytic vegetation" or "hydrophytes" means plants adapted to growing in seasonally or permanently flooded conditions.

"Intermittent streams" means fresh waters flowing in definite natural channels only during part of the year or season. Intermittent streams include many tributaries of perennial streams.

"Introduced aquatic life" means those species of aquatic organisms that are not native to a given area or water body and whose populations were established (deliberately or accidentally) by human activity.

"Introduced" organisms are also referred to as "alien" or "exotic".

"Low wetlands" means freshwater wetlands located below 100 m (330 ft) elevation that may be natural or artificial in origin and are usually found near coasts or in valley termini. Low wetlands are maintained by either stream, well, or ditch influent water, or by exposure of the natural water table. Low wetlands include, but are not limited to, natural lowland marshes, riparian wetlands, littoral zones of standing waters (including lakes, reservoirs, ponds and fishponds) and agricultural wetlands such as taro lo'i.

"Native aquatic life" means those species or higher taxa of aquatic organisms that occur naturally in a given area or water body and whose populations were not established as a result of human activity.

"Natural estuaries" means volumes of brackish coastal waters in well-defined basins of natural origin, found mainly at the mouths of streams or rivers. Natural estuaries can be either stream-fed (drowned stream mouths fed by perennial stream runoff) or spring-fed (nearshore basins with subterranean fresh water sources). Stream-fed estuaries serve as important migratory pathways for larval and juvenile amphidromous stream fauna.

"Natural freshwater lakes" means standing water that is always fresh, in well-defined natural basins, with a surface area usually greater than 0.1 ha (0.25 acres), and in which rooted emergent hydrophytes, if present, occupy no more than 30% of the surface area. Natural freshwater lakes in Hawai‘i

occur at high, intermediate, and low elevations. Lowland freshwater lakes characteristically lack a natural oceanic connection (surface or subsurface) of a magnitude sufficient to cause demonstrable tidal fluctuations.

"Perennial streams" means fresh waters flowing year-round in all or part of natural channels, portions of which may be modified by humans. Flow in perennial streams may vary seasonally. Perennial streams may be subdivided into longitudinal zones, based on elevation and gradient: (1) headwater zone (elevation above 800 m [2600 ft] or gradient above 30 per cent or both); (2) mid-zone (elevation between 50-800 m [165-2600 ft], or gradient between 5 and 30 per cent or both); and (3) terminal zone (elevation below 50 m [165 ft] or gradient below 5 per cent or both). Perennial streams may be either continuous or interrupted. Continuous perennial streams discharge continuously to the ocean in their natural state, and contain water in the entire length of the stream channel year-round. Interrupted perennial streams usually flow perennially in their upper reaches but only seasonally in parts of their middle or lower reaches, due to either downward seepage of surface flow (naturally interrupted) or to man-made water diversions (artificially interrupted).

"Pesticide" means: (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest; and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

"Reference sites (areas)" means geolocated examples of the different types of waterbodies and their associated water quality, aquatic habitats, and aquatic biota. These sites are distributed along quality gradients for each water body type, ranging from "very poor" quality to "poor", "good", "high", and "excellent" quality. Reference sites serve as models for assigning newly-monitored and assessed sites to an overall waterbody quality ranking. This information is used for water quality management purposes.

"Reservoirs" means standing water that is always fresh, in well-defined artificially created impoundments.

"Saline [or salt] waters" means waters with dissolved inorganic ion concentrations greater than [thirty-two] thirty (30.0) but less than thirty-four point nine (34.9) parts per thousand (ppt). All saline waters are classified as marine waters.

"Saline lakes" means standing waters of salinities ranging from brackish to hypersaline, located in well-defined natural basins, and lacking a natural surface connection to the ocean. Saline lakes may be present as high-island shoreline or near-shoreline features (e.g. Lake Nomilu, Kauai; Salt Lake, Oahu; Lake Kauhako, Molokai) or as low-island closed lagoons (Lake Laysan, Laysan). They are usually, but not always, fed by seawater seepage and may be diluted by rainwater, overland runoff, or ground water, or concentrated by evaporation.

"Sample size (n)" means the number of measured values of one or more environmental parameters at a control station or project sampling station. (Note that three measurements per

station are required for sampling under the site-specific criteria for the Kona (west) coast of the island of Hawaii).

"Springs and seeps" means small, perennial, relatively constant freshwater flow not in distinct channels, such as wet films or trickles over rock surfaces, in which the water emanates from elevated aquifers. Springs and seeps may be either stream associated, occurring in deeply cut valleys and contributing to stream flow; or coastal, occurring on coastal cliffs and usually flowing into the ocean.

"Standing waters" refers to waters of variable size, depth, and salinity, that have little or no flow and that are usually contained in well-defined basins. Standing water bodies include natural freshwater lakes, reservoirs or impoundments, saline lakes, and anchialine pools.

"State waters", as defined by section 342D-1, HRS, means all waters, fresh, brackish, or [salt] saline around and within the State, including, but not limited to, coastal waters, streams, rivers, drainage ditches, ponds, reservoirs, canals, ground waters, and lakes; provided that drainage ditches, ponds, and reservoirs required as part of a water pollution control system are excluded. This chapter applies to all state waters, including wetlands, subject to the following exceptions: (1) this chapter does not apply to groundwater;(2) this chapter does not apply to ditches, flumes, ponds and reservoirs that are required as part of a water pollution control system; and (3) this chapter does not apply to ditches, flumes, ponds, and reservoirs that are used solely for irrigation and do not overflow into any other state waters, unless such ditches, flumes, ponds, and reservoirs are waters of the United States as defined at 40 C.F.R. 122.2. The State of Hawai‘i has those boundaries stated in Hawai‘i Constitution, art. XV, §1.

"Streams" means seasonal or continuous water flowing unidirectionally down altitudinal gradients in all or part of natural or modified channels as a result of either surface water runoff or ground water influx, or both. Streams may be either perennial or intermittent and include all natural or modified watercourses.

"Stream channel" means a natural or modified watercourse with a definite bed and banks which periodically or continuously contains flowing water.

"Stream system", means the aggregate of water features comprising or associated with a stream, including the stream itself and its tributaries, headwaters, ponds, wetlands, and estuary. A stream system is geographically delimited by the boundaries of its drainage basin or watershed.

"Surface water" means both contained surface water (that is, water upon the surface of the earth in well-defined basins created naturally or artificially including, but not limited to, streams, other watercourses, lakes, and reservoirs).and diffused surface water (that is, water occurring upon the surface of the ground other than in contained basins). Water from natural springs and seeps is surface water when it exits from the spring onto the earth's surface.

"Transitional oceanic waters" means all marine waters of salinity greater than or equal to than 34.9 ppt and less than or equal to 35.5 ppt.

"Wetlands" means land that is transitional between terrestrial and aquatic ecosystems where the water table is usually at or near the surface or the land is covered by shallow water. A wetland shall have one or more of the following attributes: 1) at least periodically the land supports predominantly hydrophytic vegetation; 2) the substratum is predominantly undrained hydric soil; or 3) the substratum is nonsoil (gravel or rocks) and is at least periodically saturated with water or covered by shallow water. Wetlands may be fresh, brackish, or saline and generally include swamps, marshes, bogs, and associated ponds and pools, mud flats, isolated seasonal ponds, littoral zones of standing water bodies, and alluvial floodplains. For the purpose of applying for water quality certifications under Clean Water Act Section 401, and for National Pollutant Discharge Elimination System (NPDES) permit purposes, the identification and delineation of wetland boundaries shall be done following the procedures described in the U.S. Army Corps of Engineers' Wetlands Delineation Manual (USACE 1987). [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §187A-1, §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5; 40 C.F.R. §§ 122.2, 130.2, 131.3, 131.12; 22 U.S.C. §1362(14))

Proposed Amendments to HAR 11-54-2
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-2 Classification of state waters. (a) State waters are classified as either inland waters or marine waters.

(b) Inland waters [may be fresh, brackish, or saline.] include only fresh waters.

(1) All inland [fresh] waters are classified as follows, based on their ecological characteristics and other natural criteria:

(A) Flowing waters.

(i) Streams (perennial and intermittent);

(ii) Flowing springs and seeps; and

(iii) Ditches and flumes that discharge into any other waters of the state;

(B) Standing waters.

(i) Natural freshwater lakes; and

(ii) Reservoirs (impoundments);

(C) Wetlands.

(i) Elevated wetlands (bogs, marshes, swamps, and associated ponds); and

(ii) Low wetlands (marshes, swamps, and associated ponds).

[(2)] (c) All [inland] marine waters are brackish or saline [waters], and are classified as follows, based on their ecological characteristics and other natural criteria:

[(A)] (1) Standing waters.

[(i)] (A) Anchialine pools; and

[(ii)] (B) Saline lakes.

[(B)] (2) Wetlands.

[(i)] (A) [Coastal] Brackish and saline wetlands (marshes, swamps, and associated ponds).

[(C)] (3) Estuaries.

[(i)] (A) Natural estuaries (stream-fed estuaries and spring-fed estuaries); and

[(ii)] (B) Developed estuaries.

[(c) Marine waters.]

[(1) All marine waters are either embayments, open coastal, or oceanic waters;]

(4) Brackish coastal waters and saline coastal waters, including harbors and narrow bays.

(5) Transitional oceanic waters.

[(2)] (6) All marine waters which are [embayments or] brackish coastal waters or saline coastal waters are also classified according to the following bottom subtypes:

(A) Sand beaches;

(B) Lava rock shorelines and solution benches;

(C) Marine pools and protected coves;

(D) Artificial basins;

(E) Reef flats; and

(F) Soft bottoms.[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §§342D-1, 342D-4, 342D-5)(Imp: HRS §§342D-4, 342D-5)

Proposed Amendments to HAR 11-54-3
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-3 Classification of water uses. (a) The following use categories classify inland and marine waters for purposes of applying the standards set forth in this chapter, and for the selection or definition of appropriate quality parameters and uses to be protected in these waters. Storm water discharge into State waters shall be allowed provided it meets the requirements specified in this section and the basic water quality criteria specified in section 11-54-4.

(b) Inland waters.

(1) Class 1.

It is the objective of class 1 waters that these waters remain in their natural state as nearly as possible with an absolute minimum of pollution from any human-caused source. To the extent possible, the wilderness character of these areas shall be protected. Waste discharge into these waters is prohibited. Any conduct which results in a demonstrable increase in levels of point or nonpoint source contamination in class 1 waters is prohibited.

(A) Class 1.a.

The uses to be protected in class 1.a waters are scientific and educational purposes, protection of native breeding stock, baseline references from which human-caused changes can be measured, compatible recreation, aesthetic enjoyment, and other nondegrading uses which are compatible with the protection of the ecosystems associated with waters of this class;

(B) Class 1.b.

The uses to be protected in class 1.b waters are domestic water supplies, food processing, protection of native breeding stock, the support and propagation of aquatic life, baseline references from which human-caused changes can be measured, scientific and educational purposes, compatible recreation, and aesthetic enjoyment. [Public access to these waters may be restricted to protect drinking water supplies;]

(2) Class 2.

The objective of class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies[, shipping, and navigation.] small commercial boats and ecotourism. The uses to be protected in this class of waters are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of

treatment or control compatible with the criteria established for this class. No new treated sewage discharges shall be permitted within [estuaries.] inland waters.

Discharges may be permitted within inland waters for:

[(B)](A) Stormwater discharges associated with industrial activities (defined in 40 C.F.R. Section 122.26(b)(14) and(b)(15), except (b)(15)(i)(A) and (b)(15)(i)(B)) which meet, at the minimum, the basic water quality criteria applicable to all waters as specified in section 11-54-4(a), and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control"; and

[(C)](B) Discharges covered by a National Pollutant Discharge Elimination System general permit, approved by the U.S. Environmental Protection Agency and issued by the Department in accordance with 40 C.F.R. Section 122.28 and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control.".

(c) Marine waters.

(1) Class AA. brackish and saline coastal waters and Class AA estuarine waters)

It is the objective of class AA brackish coastal waters and saline coastal waters and class AA estuarine waters that these waters remain in their natural [pristine] state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions. To the extent practicable, the wilderness character of these areas shall be protected. No zones of mixing shall be permitted in this class:

(A) Within a defined reef area, in waters of a depth less than 18 meters (ten fathoms); or

(B) In waters up to a distance of [300] 500 meters or [(one thousand feet)] one thousand six hundred and forty feet off shore if there is no defined reef area and if the depth is greater than 18 meters (ten fathoms). The uses to be protected in these classes of waters are oceanographic and coastal research, the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation, and aesthetic enjoyment. The classification of any water area as Class AA brackish or saline coastal waters or class AA estuarine waters shall not preclude other uses of the waters compatible with these objectives and in conformance with the criteria applicable to them;

(2) Class A[.] brackish and saline coastal waters and Class A estuarine waters

It is the objective of class A brackish coastal and saline coastal waters and class A estuarine waters. that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for [this class] these classes. No new sewage discharges will be permitted within [embayments.] estuaries, harbors, and narrow bays. No new industrial discharges shall be permitted within [embayments,] estuaries, harbors, and narrow bays, with the exception of:

(A) Acceptable non-contact thermal and drydock or marine railway discharges, in the following water bodies:

(i) Pearl Harbor, Oahu;
(ii) Honolulu Harbor, Oahu;
(iii) Barbers Point Harbor, Oahu;
(iv) Keehi Lagoon Marina Area, Oahu;
(v) Ala Wai Boat Harbor, Oahu; and
(vi) Kahului Harbor, Maui.

(B) Storm water discharges associated with industrial activities (defined in 40 C.F.R. Section 122.26(b)(14) and (b)(15), except (b)(15)(i)(A) and (b)(15)(i)(B)) which meet, at the minimum, the basic water quality criteria applicable to all waters as specified in section 11-54-4, and all applicable requirements specified in the chapter 11-55, titled "Water Pollution Control;" and

(C) Discharges covered by a National Pollutant Discharge Elimination System general permit, approved by the U.S. Environmental Protection Agency and issued by the Department in accordance with 40 C.F.R. Section 122.28 and all applicable requirements specified in chapter 11-55, titled "Water Pollution Control."

(d) Marine bottom ecosystems[.]

(1) Class I.

It is the objective of class I marine bottom ecosystems [that], which may be found beneath either Class AA or Class A waters, that they remain as nearly as possible in their natural [pristine] state with an absolute minimum of pollution from any human-induced source. Uses of marine bottom ecosystems in this class are passive human uses without intervention or alteration, allowing the perpetuation and preservation of the marine bottom in a most natural state, such as for nonconsumptive scientific research (demonstration, observation or monitoring only), nonconsumptive education, aesthetic enjoyment, passive activities, and preservation;

(2) Class II. It is the objective of class II marine bottom ecosystems [that], which may be found beneath either Class AA or Class A waters, that their use for protection including propagation of fish, shellfish, and wildlife, and for recreational purposes not be limited in any way. The uses to be protected in this class of marine bottom ecosystems are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation. Any action which may permanently or completely modify, alter, consume, or degrade marine bottoms, such as structural flood control channelization, [(dams)]; landfill and reclamation; navigational structures (harbors, ramps); structural shore protection (seawalls, revetments); and wastewater effluent outfall structures may be allowed upon securing approval in writing from the director, considering the environmental impact and the public interest pursuant to sections 342D-4, 342D-5, 342D-6, and 342D-50, HRS in accordance with the applicable provisions of chapter 91, HRS.[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §174C, §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

Proposed Amendments to HAR 11-54-4
Hawaii State Department of Health
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§11-54-4 Basic water quality criteria applicable to all waters.
(a) All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants[, including:] . All samplers shall score each criterion as "1" if one or more criteria are exceeded, and as "0" if all criteria are met. Samplers shall also identify the problem when any score of "1" is based on readily visible exceedances in the area observed, and submit these data along with reports of other data required under this chapter.

(1) Materials that will settle to form objectionable bottom deposits[;], including but not limited to silt and/or clay (grain size < 0.125 mm); sludge; waste ash; clinkers; charcoal from cooking fires; items such as trash and litter, and live invasive species and their remains.
(2) Floating debris, including but is not limited to decaying organic matter such as yard clippings; dead domestic animals; fish and shellfish carcasses discarded after cleaning; invasive plants and/or their debris; film, oil, grease, scum, or other floating materials;
(3) Substances in amounts sufficient to produce taste in the water or detectable off-flavor in the flesh of edible organisms used for human consumption, or in amounts sufficient to produce objectionable color, turbidity or other, including but not limited to conditions in the receiving waters;
(4) High or low temperatures; biocides; pathogenic organisms; toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any [beneficial] designated or existing use of the water;
(5) Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life; and
(6) Soil particles resulting from erosion on land [involved in] subject to earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

For agricultural lands, [T]the requirements of paragraph (a)(6) shall be deemed met upon a showing that the land on which the erosion occurred or is occurring is being managed in accordance with soil conservation practices acceptable to the applicable soil and water conservation district [and the director], and that a comprehensive conservation program is being actively pursued, or that the discharge has received

the best degree of treatment or control, and that the severity of impact of the residual soil reaching the receiving body of water is deemed to be acceptable.

(b) To ensure compliance with paragraph (a)(4), all state waters are subject to monitoring and to the following standards for acute and chronic toxicity and the protection of human health.

(1) As used in this section:

(A) "Acute Toxicity" means the degree to which a pollutant, discharge, or water sample causes a rapid adverse impact to aquatic organisms. The acute toxicity of a discharge or receiving water is measured using the methods in section 11-54-10, unless other methods are specified by the director.

(B) "Chronic Toxicity" means the degree to which a pollutant, discharge, or water sample causes a long-term adverse impact to aquatic organisms, such as a reduction in growth or reproduction. The chronic toxicity of a discharge or receiving water is measured using the methods in section 11-54-10, unless other methods are specified by the director.

(C) "Dilution" means, for discharges through submerged outfalls, the average and minimum values calculated using the models in the EPA publication, Initial Mixing Characteristics of Municipal Ocean Discharges (EPA/600/3-85/073, November, 1985), or in the EPA publication, Expert System for Hydrodynamic Mixing Zone Analysis of Conventional and Toxic Submerged Single Port Discharges (Cormix 1) (EPA/600/3-90/073), February, 1990.

(D) "No Observed Effect Concentration [Observed Effect Concentration"]" (NOEC), means the highest per cent concentration of a discharge or water sample, in dilution water, which causes no observable adverse effect in a chronic toxicity test. For example, an NOEC of 100 percent indicates that an undiluted discharge or water sample causes no observable adverse effect to the organisms in a chronic toxicity test.

(2) Narrative toxicity and human health standards.

(A) Acute Toxicity Standards: All state waters shall be free from pollutants in concentrations which exceed the acute standards listed in paragraph (3). All state waters shall also be free from acute toxicity as measured using the toxicity tests listed in section 11, or other methods specified by the director.

(B) Chronic Toxicity Standards: All state waters shall be free from pollutants in concentrations which on average during any twenty-four hour period exceed the chronic standards listed in paragraph (3). All state waters shall also be free from chronic toxicity as measured using the toxicity tests listed in section 11-54-10, or other methods specified by the director.

(C) Human Health Standards: All state waters shall be free from pollutants in concentrations which, on average during any thirty day period, exceed the "fish

consumption" standards for non-carcinogens in paragraph (3). All state waters shall also be free from pollutants in concentrations, which on average during any 12 month period, exceed the "fish consumption" standards for pollutants identified as carcinogens in paragraph (3).

(3) Numeric standards for toxic pollutants applicable to all waters. The freshwater standards apply where the dissolved inorganic ion concentration is less than 0.5 parts per thousand; saltwater standards apply above 0.5 parts per thousand. Values for metals refer to the dissolved fraction. All values are expressed in micrograms per liter.

	Freshwaters		Brackish&Saline Waters		Fish
Pollutant	Acute	Chronic	Acute	Chronic	Consumption
Acenapthene	570	ns	320	ns	Ns
Acrolein	23	ns	18	ns	250
Acrylonitrile*	2,500	ns	ns	ns	0.21
Aldrin*	3.0	ns	1.3	ns	0.000026
Aluminum	750	260	ns	ns	ns
Antimony	3,000	ns	ns	ns	15,000
Arsenic	360	190	69	36	ns
Benzene*	1,800	ns	1,700	ns	13
Benzidine*	800	ns	ns	ns	0.00017
Beryllium*	43	ns	ns	ns	0.038
Cadmium	3+	3+	43	9.3	ns

	Freshwaters		Brackish&Saline Waters		Fish
Pollutant	Acute	Chronic	Acute	Chronic	Consumption
Carbon tetra-chloride*	12,000	ns	16,000	ns	2.3
Chlordane*	2.4	0.0043	0.09	0.004	0.000016
Chlorine	19	11	13	7.5	ns
Chloroethers-ethy(bis-2)*	ns	ns	ns	ns	0.44
isoprophyl	ns	ns	ns	ns	1,400
methyl(bis)*	ns	ns	ns	ns	0.00060
Chloroform*	9,600	ns	ns	ns	5.1
Chlorophenol(2)	1,400	ns	ns	ns	ns

Chlorpyrifos	0.083	0.041	0.011	0.0056	ns
Chromium (VI)	16	11	1,100	50	ns
Copper	6+	6+	2.9	2.9	ns
Cyanide	22	5.2	1	1	ns
DDT*	1.1	0.001	0.013	0.001	0.000008
metabolite TDE*	0.03	ns	1.2	ns	ns
Demeton		0.1	ns	0.1	ns
Dichloro-benzenes*	370	ns	660	ns	850
benzidine*	ns	ns	ns	ns	0.007
ethane(1,2)*	39,000	ns	38,000	ns	79
ehenol(2,4)	670	ns	ns	ns	ns
propanes	7,700	ns	3,400	ns	ns
propene(1,3)	2,000	ns	260	ns	4.6
Dieldrin*	2.5	0.0019	0.71	0.0019	0.000025
Dinitro o-cresol(2,4)	ns	ns	ns	ns	250
toluenes*	110	ns	200	ns	3.0
Dioxin*	0.003	ns	ns	ns	5.0×10^{-9}

	Freshwaters		Brackish&Saline Waters		Fish
Pollutant	Acute	Chronic	Acute	Chronic	Consumption
Diphenyl-hydrazine(1,2)	ns	ns	ns	ns	0.018
Endosulfan	0.22	0.056	0.034	0.0087	52
Endrin	0.18	0.0023	0.037	0.0023	ns
Ethylbenzene	11,000	ns	140	ns	1,070
Fluoranthene	1,300	ns	13	ns	18
Guthion	ns	0.01	ns	0.01	ns
Heptachlor*	0.52	0.0038	0.053	0.0036	0.00009
Hexachloro-benzene*	ns	ns	ns	ns	0.00024
butadiene*	30	ns	11	ns	16

cyclohexane-alpha*	ns	ns	ns	ns	0.010
beta*	ns	ns	ns	ns	0.018
technical*	ns	ns	ns	ns	0.014
cyclopentadiene	2	ns	2	ns	ns
ethane*	330	ns	310	ns	2.9
Isophorone	39,000	ns	4,300	ns	170,000
Lead	29+	29+	140	5.6	ns
Lindane*	2.0	0.08	0.16	ns	0.020
Malathion	ns	0.1	ns	0.1	ns
Mercury	2.4	0.55	2.1	0.025	0.047
Methoxychlor	ns	0.03	ns	0.03	ns
Mirex	ns	0.001	ns	0.001	ns
Naphthalene	770	ns	780	ns	ns
Nickel	5+	5+	75	8.3	33
Nitrobenzene	9,000	ns	2,200	ns	ns
Nitrophenols*	77	ns	1,600	ns	ns

	Freshwaters		Brackish&Saline Waters		Fish
Pollutant	Acute	Chronic	Acute	Chronic	Consumption
Nitrosamines*	1,950	ns	ns	ns	0.41
Nitroso dibutylamine-N*	ns	ns	ns	ns	0.19
diethylamine-N*	ns	ns	ns	ns	0.41
dimethylamine-N*	ns	ns	ns	ns	5.3
diphenylamine-N*	ns	ns	ns	ns	5.3
Pyrrolidine-N*	ns	ns	ns	ns	30
Parathion	0.065	0.013	ns	ns	ns
Pentachloro-ethanes	2,400	ns	130	ns	ns
benzene	ns	ns	ns	ns	28
phenol	20	13	13	ns	ns

Phenol	3,400	ns	170	ns	ns
2,4-dimethyl	700	ns	ns	ns	ns
Phthalate esters					
dibutyl	ns	ns	ns	ns	50,000
diethyl	ns	ns	ns	ns	590,000
di-2-ethylhexyl	ns	ns	ns	ns	16,000
dimethyl	ns	ns	ns	ns	950,000
Polychlorinated biphenyls*	2.0	0.014	10	0.03	0.000079
Polynuclear aromatic hydrocarbons*	ns	ns	ns	ns	0.01
Selenium	20	5	300	71	ns
Silver	1+	1+	2.3	ns	ns
Tetrachloro-ethanes	3,100	ns	ns	ns	ns
benzene(1,2,4,5)	ns	ns	ns	ns	16
ethane(1,1,2,2)*	ns	ns	3,000	ns	3.5

	Freshwaters		Brackish&Saline Waters		Fish
Pollutant	Acute	Chronic	Acute	Chronic	Consumption
ethylene*	1,800	ns	3,400	145	2.9
phenol(2,3,5,6)	ns	ns	ns	440	ns
Thallium	470	ns	710	ns	16
Toluene	5,800	ns	2,100	ns	140,000
Toxaphene*	0.73	0.0002	0.21	0.0002	0.00024
Tributyltin	ns	0.026	ns	0.01	ns
Trichloro-ethane(1,1,1)	6,000	ns	10,400	ns	340,000
ethane(1,1,2)*	6,000	ns	ns	ns	14
ethylene*	15,000	ns	700	ns	26
phenol(2,4,6)*	ns	ns	ns	ns	1.2
Vinyl chloride*	ns	ns	ns	ns	170
Zinc	22+	22+	95	86	ns

ns -No standard has been developed.
* - Carcinogen.
+ - The value listed is the minimum standard. Depending upon the receiving water $CaCO_3$ hardness, higher standards may be calculated using the respective formula in the U. S. Environmental Protection Agency publication Quality Criteria for Water (EPA 440/5-86-001, Revised May 1, 1987).

Note - Compounds listed in the plural in the "Pollutant" column represent complex mixtures of isomers. Numbers listed to the right of these compounds refer to the total allowable concentration of any combination of isomers of the compound, not only to concentrations of individual isomers.

(4) The following are basic requirements applicable to discharges to state waters. These standards shall be enforced through effluent limitations or other conditions in discharge permits. The director may apply more stringent discharge requirements to any discharge if necessary to ensure compliance with all standards in paragraph (2).

(A) Continuous discharges through submerged outfalls. The No Observed Effect Concentration (NOEC), expressed as percent effluent, of continuous discharges through submerged outfalls shall not be less than 100 divided by the minimum dilution. In addition, such discharges shall not contain:

(i) Pollutants in twenty four hour average concentrations greater than the values obtained by multiplying the minimum dilution by the standards in paragraph (3) for the prevention of chronic toxicity.

(ii) Non-carcinogenic pollutants in thirty day average concentrations greate than the values obtained by multiplying the minimum dilution by the standards in paragraph (3) for fish consumption.

(iii) Carcinogenic pollutants in twelve month average concentrations greater than the values obtained by multiplying the average dilution by the standards in paragraph (3)for fish consumption.

(B) Discharges without submerged outfalls. The survival of test organisms in an undiluted acute toxicity test of any discharge shall not be less than 80 per cent[.] <u>of test control survival.</u> In addition, no such discharge shall contain pollutants in concentrations greater than the standards in paragraph (3)for the prevention of acute toxicity to aquatic life. The director may make a limited allowance for dilution for a discharge in this category if it meets the following criteria: the discharge velocity is greater than 3 meters per second; the discharge

enters the receiving water horizontally, and; the receiving water depth at the discharge point is greater than zero.

[(c) The requirements of paragraph (a)(6) shall be deemed met upon a showing that the land on which the erosion occurred or is occurring is being managed in accordance with soil conservation practices acceptable to the applicable soil and water conservation district and the director, and that a comprehensive conservation program is being actively pursued, or that the discharge has received the best degree of treatment or control, and that the severity of impact of the residual soil reaching the receiving body of water is deemed to be acceptable.]

[(b)] (c) In order to reduce a risk to public health or safety arising out of any violation or probable violation of this chapter, the director may post or order posted any state waters. Posting is the placement, erection, or use of a sign or signs warning people to stay out of, avoid drinking, avoid contact with, or avoid using the water. This posting authority shall not limit the director's authority to post or order posting in any other appropriate case or to take any enforcement action.

(d) State waters may contain pesticides in concentrations that exceed the limits in subsections (a) and (b) if the pesticides are:

(1) Registered by the U.S. Environmental Protection Agency and licensed by the state department of agriculture or other state agency regulating pesticides.

(2) Used for the purpose of maintaining, enhancing or restoring the designated or existing uses of a water body; controlling aquatic pests; or protecting public health against actual or potential sickness, disease, or harm, including, but not limited to, vector-borne diseases; and

(3) Applied in a manner consistent with the labeling of the pesticide

(4) Applied under permits required by the federal Clean Water Act, if any. (Auth/Impl: HRS 342D-xx, HRS 322-1; CWA 402, 510)

[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §§342D-1,342D-4, 342D-5, HRS 322-1) (Imp: HRS §§342D-4, 342D-5, HRS 321-1)

Proposed Amendments to HAR 11-54-5
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-5 Uses and specific criteria applicable to inland waters[.], which include only freshwaters. Inland water areas to be protected are described in section 11-54-5.1, corresponding specific criteria are set forth in section 11-54-5.2; water body types are defined in section 11-54-1. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp[**OCT 02 2004**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

§11-54-5.1 Inland water areas to be protected.
[(a)Freshwaters.]
(a) This section applies only to fresh inland waters of salinity less than or equal to 0.5 ppt.
(1) Flowing waters: perennial streams and rivers, intermittent streams, springs and seeps, and man-made ditches and flumes that discharge into any other waters of the State.
A) Class 1.a.
(i) All flowing waters within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.
(ii) All flowing waters in national and state parks.
(iii) All flowing waters in state or federal fish and wildlife refuges.
(iv) All flowing waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.
[(v) All flowing waters in Wai-manu National Estuarine Research Reserve (Hawai‘i).]
(B) Class 1.b. All flowing waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.
(C) Class 2. All flowing waters in areas not otherwise classified.
All flowing waters in classes 1 and 2 in which water quality exceeds the standards specified in this chapter shall not be lowered in quality unless it has been affirmatively demonstrated to the director that the change is justifiable as a result of important economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently in, those waters. This statement of

antidegradation policy does not limit the applicability of the policy in 11-54.1.1 to the whole chapter.

(2) Standing waters (natural freshwater lakes and reservoirs):

(A) Class 1.a.

(i) All standing waters within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All standing waters in national and state parks.

(iii) All standing waters in state or federal fish and wildlife refuges.

(iv) All standing waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

[(v) All standing waters in Wai-manu National Estuarine Research Reserve (Hawai‘i).]

(B) Class 1.b. All standing waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(C) Class 2. All standing waters in areas not otherwise classified.

(D) Natural freshwater lakes will be maintained in the natural state through Hawaii's "no discharge" policy for these waters. Discharge of any pollutant into natural freshwater lakes is prohibited except when in compliance with section 11-54-4(d).

(3) Elevated wetlands and low wetlands:

(A) Class 1.a.

(i) All elevated and low wetlands within the natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(ii) All elevated and low wetlands in national and state parks.

(iii) All elevated and low wetlands in state or federal fish and wildlife refuges.

(iv) All elevated and low wetlands which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

[(v) All elevated and low wetlands in Wai-manu National Estuarine Research Reserve (Hawai‘i).]

(B) Class 1.b. All elevated and low wetlands in protective subzones designated under chapter 13-5 of the state board of land and natural resources.
(C) Class 2. All elevated and low wetlands not otherwise classified.

[(b) Brackish or saline waters (anchialine pools, saline lakes, coastal wetlands, and estuaries).
(1) Class 1.a.
(A) All inland brackish or saline waters within natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.
(B) All inland brackish or saline waters in national and state parks.
(C) All inland brackish or saline waters in state or federal fish and wildlife refuges.
(D) All inland brackish or saline waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.
(E) All inland brackish and saline waters in Wai-manu National Estuarine Research Reserve (Hawai‘i).
(F) The following natural estuaries: Lumaha‘i and Ki-lau-ea estuaries (Kaua‘i).
(2) Class 1.b. All inland brackish or saline waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.
(3) Class 2. All inland brackish and saline waters not otherwise classified.
[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**](Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4,342D-5)]

§11-54-5.2 [Inland water criteria.] (a) Freshwater [C]criteria for springs and seeps, ditches and flumes, natural freshwater lakes, reservoirs, low wetlands, [coastal] freshwater wetlands, [saline lakes, and anchialine pools.]. Only the basic criteria set forth in section 11-54-4 apply to springs and seeps, ditches and flumes, natural freshwater lakes, reservoirs, low wetlands, [coastal] and freshwater wetlands, [saline lakes, and anchialine pools.]. Natural freshwater lakes, [saline lakes, and anchialine pools] will be maintained in the natural state through Hawai‘i's "no discharge" policy for these waters. Waste discharge into [these waters] natural freshwater lakes, [saline lakes, and anchialine pools] is prohibited [(see paragraph 11-54-3(b)(1))] except when in compliance with section 11-54-4(d).

(b) Specific criteria for streams. [Water column criteria for streams shall be as provided] Please see Appendix A. Table 1.

All persons shall use Table 1 when the measured stream salinity is less than or equal to 0.5 ppt.

[Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to Exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	250.0* 180.0**	520.0* 380.0**	800.0* 600.0**
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	70.0* 30.0**	180.0* 90.0**	300.0* 170.0**
Total Phosphorus (ug P/L)	50.0* 30.0**	100.0* 60.0**	150.0* 80.0**
Total Suspended Solids (mg/L)	20.0* 10.0**	50.0* 30.0**	80.0* 55.0**
Turbidity (N.T.U.)	5.0* 2.0**	15.0* 5.5**	25.0* 10.0**

* Wet season - November 1 through April 30.
** Dry season - May 1 through October 31.
L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from ambient conditions and shall not be lower than 5.5 nor higher than 8.0
Dissolved Oxygen - Not less than eighty per cent saturation, determined as a function of ambient water temperature.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Specific Conductance - Not more than three hundred micromhos/centimeter.]

[(2)] (1) Bottom criteria for streams:

(A) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding an equivalent thickness of five millimeters (0.20 inch) over hard bottoms twenty-four hours after a heavy rainstorm.

(B) Episodic deposits of flood-borne soil sediment shall not occur in quantities exceeding an equivalent thickness of ten millimeters (0.40

inch) over soft bottoms twenty-four hours after a heavy rainstorm.

(C) In soft bottom material in pool sections of streams, oxidation-reduction potential (EH) in the top ten centimeters (four inches) shall not be less than +100 millivolts.

(D) In soft bottom material in pool sections of streams, no more than fifty per cent of the grain size distribution of sediment shall be smaller than 0.125 millimeter (0.005 inch) in diameter.

(E) The director shall prescribe the appropriate parameters, measures, and criteria for monitoring stream bottom biological communities including their habitat, which may be affected by proposed actions. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality criteria for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

(c) Specific criteria for elevated wetlands: pH units [shall not deviate more than 0.5 units from ambient conditions and] shall not be lower than 4.5 nor higher than 7.0.

[(d) Specific criteria for estuaries

(1) The following table is applicable to all estuaries except Pearl Harbor:

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to Exceed the given value more than two per cent of the time

Total Nitrogen (ug N/L)	200.00	350.00	500.00
Ammonia Nitrogen (ug NH_4-N/L)	6.00	10.00	20.00
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	8.00	25.00	35.00
Total Phosphorus (ug P/L)	25.00	50.00	75.00
Chlorophyll a (ug/L)	2.00	5.00	10.00
Turbidity (N.T.U.)	1.5	3.00	5.00

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - [shall not deviate more than 0.5 units from ambient conditions and] shall not be lower than 7.0 nor higher than 8.6.
Dissolved Oxygen - Not less than seventy-five per cent saturation[, determined as a function of ambient water temperature and salinity.] .
[Temperature - Shall not vary more than one degree Celsius from ambient conditions.]
[Salinity - Shall not vary more than ten per cent from ambient conditions.]
Oxidation - reduction potential (EH) - Shall not be less than-100 millivolts in the uppermost ten centimeters (four inches) of sediment.]

[(2) The following table is applicable only to Pearl Harbor Estuary.

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time

Total Nitrogen (ug N/L)	300.00	550.00	750.00
Ammonia Nitrogen (ug NH_4-N/L)	10.00	20.00	30.00
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	15.00	40.00	70.00
Total Phosphorus (ug P/L)	60.00	130.00	200.00
Chlorophyll a (ug/L)	3.50	10.00	20.00
Turbidity (N.T.U.)	4.00	8.00	15.00

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams.
pH Units - [shall not deviate more than 0.5 units from ambient conditions and] shall not be lower than 6.8 nor higher than 8.8.
Dissolved Oxygen - Not less than sixty per cent saturation[, determined as a function of ambient water temperature and salinity.] .
[Temperature - Shall not vary more than one degree Celsius from ambient conditions.]
[Salinity - Shall not vary more than ten per cent from ambient conditions.]
Oxidation - Reduction potential (EH) - Shall not be less than-100 millivolts in the uppermost ten centimeters (four inches) of sediment.] [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §§342D-1, 342D-4, 342D-5, 321-1) (Imp: HRS §§342D-4, 342D-5, 321-1)

Proposed Amendments to HAR 11-54-6
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-6 Uses and specific criteria applicable to marine waters[.], which include all brackish and saline waters of salinity >0.5 ppt to <36.0 ppt. Marine areas to be protected are described in section 11-54-6.1, corresponding specific criteria are set forth in Appendix A (Tables 2 to 6); water body types are defined in section 11-54-1. [Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp[**OCT 02 2004**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

[(a) Embayments.
(1) As used in this section:
"Embayments" means land-confined and physically-protected marine waters with restricted openings to open coastal waters, defined by the ratio of total bay volume to the cross-sectional entrance area of seven hundred to one or greater.
"Total bay volume" is measured in cubic meters and "cross-sectional entrance area" is measured in square meters, and both are determined at mean lower low water.]

δ 11-54-6.1 Criteria for marine waters.
(a) Criteria for coastal wetlands, saline lakes, and anchialine pools. Only the basic criteria set forth in section 11-54-4 apply to coastal wetlands, saline lakes, and anchialine pools. Saline lakes and anchialine pools will be maintained in the natural state through Hawaii's "no discharge" policy for these waters. Discharge of any pollutant into natural saline lakes and anchialine pools is prohibited, except when in compliance with section 11-54-4(d).
(b) Brackish and saline waters include anchialine pools, saline lakes, coastal wetlands, estuaries, brackish and saline coastal waters and transitional oceanic waters. This section applies only to brackish and saline estuaries and to saline waters of salinity > 0.5 to • 34.9 ppt.
(c) when the measured salinity is greater than 0.5 ppt and less than or equal to 34.9 ppt, all persons shall use Appendix A, Table 2, for estuaries and brackish coastal waters; Table 3, for saline coastal waters; Table 5, for site-specific criteria for Pearl Harbor Estuary; and Table 6, for site-specific criteria the Kona (west)coast of the island of Hawaii,
(1) Class AA.
(A) All brackish and saline waters within natural reserves, preserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195, HRS, or similar reserves for the protection of aquatic life established under chapter 195, HRS.

(B) All brackish and saline waters in national and state parks.
(C) All brackish and saline waters in state or federal fish and wildlife refuges.
(D) All brackish and saline waters which have been identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.
(E) The following natural estuaries: Lumaha‘i and Ki-lau-ea estuaries (Kaua‘i).
(F) All brackish and saline waters in protective subzones designated under chapter 13-5 of the state board of land and natural resources.

(2) Class A. All brackish and saline waters not otherwise classified.

[(2)] (c) Coastal harbors and narrow bays to be protected.

(A) Class AA.

(i) Hawaii
Paulo Bay
Waialua Bay
Anaehoomalu Bay
Kiholo Bay
Kailua Harbor
Kealakekua Bay
Honaunau Bay

Oahu
Waialua Bay
Kahana Bay
Kaneohe Bay
Hanauma Bay

Kauai
Hanalei Bay

(ii) All harbors and narrow bays in preserves, reserves, sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS, or similar reserves for the protection of marine life established under chapter 190, HRS.

(iii) All brackish and saline waters in state or federal fish and wildlife refuges and marine sanctuaries.

(iv) All brackish and saline waters which have been officially identified as a unique or critical habitat for threatened or endangered species by the U.S. Fish and Wildlife Service.

(B) Class A.

Hawaii
Hilo Bay (inside breakwater)
Kawaihae Boat Harbor
Honokohau Boat Harbor
Keauhou Bay

Maui
Kahului Bay
Lahaina Boat Harbor
Maalaea Boat Harbor

Lanai
Manele Boat Harbor
Kaumalapau Harbor

Molokai
Hale o Lono Harbor
Kaunakakai Harbor
Kaunakakai Boat Harbor

Oahu
Kaiaka Bay
Paiko Peninsula to Koko Head
Ala Wai Boat Harbor
Kewalo Basin
Honolulu Harbor
Keehi Lagoon
Barbers Point Harbor
Pokai Bay
Heeia Kea Boat Harbor
Waianae Boat Harbor
Haleiwa Boat Harbor
Ko Olina

Kauai
Hanamaulu Bay
Nawiliwili Bay
Kukuiula Bay
Wahiawa Bay
Hanapepe Bay (inside breakwater)
Kikiaola Boat Harbor
Port Allen Boat Harbor

[(3) The following criteria are specific for all embayments excluding those described in section 11-54-06(d).(Note that criteria for embayments differ based on fresh water inflow.

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to Exceed the given value more than Two per cent of The time

Total Nitrogen (ug N/L)	200.00* 150.00**	350.00* 250.00**	500.00* 350.00**
Ammonia Nitrogen (ug NH_4-N/L)	6.00* 3.50**	13.00* 8.50**	20.00* 15.00**
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	8.00* 5.00**	20.00* 14.00**	35.00* 25.00**
Total Phosphorus (ug P/L)	25.00* 20.00**	50.00* 40.00*	75.00* 60.00**
Chlorophyll a ug/L)	1.50* 0.50**	4.50** 1.50**	8.50* 3.00**
Turbidity (N.T.U.)	1.5* 0.40**	3.00* 1.00**	5.00* 1.50**

* "Wet" criteria apply when the average fresh water inflow from the land equals or exceeds one per cent of the embayment volume per day.
** "Dry" criteria apply when the average fresh water inflow from the land is less than one per cent of the embayment volume per day.
Applicable to both "wet" and "dry" conditions:
pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.
L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams]

[(b)](d) [Open coastal waters.] Marine brackish and saline coastal waters.

(1) As used in this section:

["Open coastal waters" means] [m]Marine brackish and saline coastal waters that are bounded by the shoreline, and include harbors and narrow bays. The salinity range of brackish [open coastal waters] coastal waters is greater than 0.5 ppt and less than or equal to 30.0 ppt. The salinity range of saline [open

coastal waters] coastal waters is greater than 30.0 ppt and less than or equal to 34.9 ppt.

(2) Water areas to be protected (measured in a clockwise direction from the first-named to the second-named location, where applicable):

(A) Class AA.

(i) Hawaii - The [open coastal] brackish and saline coastal waters from Leleiwi Point to Waiulaula Point;

(ii) Maui - The [open coastal] brackish and saline coastal waters between Nakalele Point and Waihee Point and between Huelo Point and Puu Olai;

(iii) Kahoolawe - All [open coastal] brackish and saline coastal waters surrounding the island;

(iv) Lanai - All brackish and saline coastal waters surrounding the island;

(v) Molokai - The [open coastal] brackish and saline coastal waters between the westerly boundary of Hale o Lono Harbor to Lamaloa Head. Also, the brackish and saline coastal waters from Cape Halawa to the easterly boundary of Kaunakakai Harbor;

(vi) Oahu - Waimanalo Bay from the southerly boundary of Kaiona Beach Park, and including the waters surrounding Manana and Kaohikaipu Islands, to Makapuu Point. Also, Waialua Bay from Kaiaka Point to Puaena Point, and the [open coastal] brackish and saline coastal waters along Kaena Point between a distance of 5.6 kilometers (3.5 miles) from Kaena Point towards Makua and 5.6 kilometers (3.5 miles) from Kaena Point toward Mokuleia;

(vii) Kauai - The [open coastal] brackish and saline coastal waters between Hikimoe Valley and Makahoa Point. Also, the [open coastal] brackish and saline coastal waters between Makahuena Point and the westerly boundary of Hoai Bay;

(viii) Niihau - All [open coastal] brackish and saline coastal waters surrounding the island;

(ix) All other islands of the state - All [open coastal] brackish and saline coastal waters surrounding the islands not classified in this section;

(x) All [open] brackish and saline coastal waters in preserves, reserves sanctuaries, and refuges established by the department of land and natural resources under chapter 195 or chapter 190, HRS or similar reserves for the protection of marine life established under chapter 190, HRS, as amended; or in the refuges or sanctuaries established by the U.S. Fish and Wildlife

Service or the National Marine Fisheries Service;

(B) Class A - All other [open coastal] brackish and saline coastal waters not otherwise specified.

[(3) The following criteria are specific for all open coastal waters, excluding those described in section 11-54-6(d). (Note that criteria for open coastal waters differ, based on fresh water discharge.)

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time
Total Nitrogen (ug N/L)	150.00* 110.00**	250.00* 180.00**	350.00* 250.00**
Ammonia Nitrogen (ug NH_4-N/L)	3.50* 2.00**	8.50* 5.00**	15.00* 9.00**
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	5.00* 3.50**	14.00* 10.00**	25.00* 20.00**
Total Phosphorus (ug P/L)	20.00* 16.00**	40.00* 30.00**	60.00* 45.00**
Light Extinction Coefficient (k units)	0.20* 0.10**	0.50* 0.30**	0.85* 0.55**
Chlorophyll a ug/L)	0.30* 0.15**	0.90* 0.50**	1.75* 1.00**
Turbidity (N.T.U.)	0.50* 0.20**	1.25* 0.50**	2.00* 1.00**

* "Wet" criteria apply when the open coastal waters receive more than three million gallons per day of fresh water discharge per shoreline mile.

** "Dry" criteria apply when the open coastal waters receive less than three million gallons per day of fresh water discharge per shoreline mile.

Applicable to both "wet" and "dry" conditions:

pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.

Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.

Temperature - Shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.
k units = the ratio of light measured at the water's surface to light measured at a particular depth.
L = liter
Light Extinction Coefficient is only required for dischargers who have obtained a waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251), as amended, and are required by EPA to monitor it.
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams]

[(c)] (e) Transitional [O]oceanic waters.

(1) Definition - "Transitional [O]oceanic waters" means all [other marine waters outside of the 183 meter (600 feet or 100 fathom) depth contour;] other marine waters of salinity greater than 34.9 ppt and less than or equal to 35.5 ppt. All persons shall use Appendix A, Table 4, when evaluating geomeans from transitional oceanic waters

(2) Water areas to be protected - Class A - All transitional oceanic waters;

[(c) Oceanic waters.

(1) Definition - "Oceanic waters" means all other marine waters outside of the 183 meter (600 feet or 100 fathom) depth contour;

(2) Water areas to be protected - Class A - All oceanic waters;

(3) The following criteria are specific for oceanic waters:

Parameter	Geometric mean not to exceed the given value	Not to exceed The given value more than ten per cent of the time	Not to exceed the given value more than two per cent of the time

Total Nitrogen (ug N/L)	50.00	80.00	100.00
Ammonia Nitrogen (ug NH_4-N/L)	1.00	1.75	2.50
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	1.50	2.50	3.50
Total Phosphorus (ug P/L)	10.00	18.00	25.00
Chlorophyll a (ug/L)	0.06	0.12	0.20
Turbidity (N.T.U.)	0.03	0.10	0.20

L = liter
N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
ug = microgram or 0.000001 grams
pH Units - shall not deviate more than 0.5 units from a value of 8.1.
Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.
Temperature - shall not vary more than one degree Celsius from ambient conditions.
Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.]

(d) Area-specific criteria for the Kona (west) coast of the island of Hawaii.

(1) For all marine waters of Hawaii Island from Loa Point, South Kona District, clockwise to Malae Point, North Kona District, excluding Kawaihae Harbor and Honokohau Harbor, and for all areas from the shoreline at mean lower low water to a distance 1000 m seaward:

[(i) in areas where nearshore marine water salinity is greater than 32.00 parts per thousand the following specific criteria apply:

Parameter	Geometric mean not to exceed the given single value

Total Dissolved Nitrogen (ug N/L)	100.00
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	4.50
Total Dissolved Phosphorus (ug P/L)	12.50
Phosphate (ug PO_4 - P/L)	5.00
Ammonia Nitrogen (ug NH_4 - N/L)	2.50
Chlorophyll a (ug/L)	0.30
Turbidity (N.T.U.)	0.10

* Specific criteria for Class A embayments apply to Honokohau Harbor and Kawaihae Harbor, see section 11-54-6(a)(3).

(ii) if nearshore marine water salinity is less than or equal to 32.00 parts per thousand the following parameters shall be related to salinity on the basis of a linear least squares regression equation:

$$Y = MX + B$$

where:
Y = parameter concentration(in ug/L)
X = salinity (in ppt)
M = regression coefficient (or "slope")
B = constant (or "Y intercept").
The absolute value of the upper 95 per cent confidence limit for the calculated sample regression coefficient (M) shall not exceed the absolute value of the following values:

Parameter	M

Nitrate and Nitrite Nitrogen (ug [NO3 + NO2]-N/L)	-31.92
Total Dissolved Nitrogen (ug N/L)	-40.35
Phosphate (ug PO4 - P/L)	-3.22
Total Dissolved Phosphorus (ug P/L)	-2.86

The specific criteria for ammonia nitrogen, chlorophyll a, and turbidity given in (i) above, also apply.

(iii) Parameter concentrations shall be determined along a horizontal transect extending seaward from a shoreline sample location using the following method: water samples shall be obtained at distances of 1, 10, 50, 100, and 500 meters from the shoreline sampling location. Samples shall be collected within one meter of the water surface and below the air-water interface. Dissolved nutrient samples shall be filtered through media with particle size retention of 0.7 um. This sampling protocol shall be replicated not less than three times on different days over a period not to exceed fourteen days during dry weather conditions. The geometric means of sample measurements for corresponding offshore distances shall be used for regression calculations.

pH Units - shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain or groundwater discharge may depress the pH to a minimum level of 7.0.

Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of ambient water temperature and salinity.

Temperature - Shall not vary more than one degree Celsius from ambient conditions.

Salinity - Shall not vary more than ten per cent from natural or seasonal changes considering hydrologic input and oceanographic factors.

L - liter

N.T.U. - Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.

ug - microgram or 0.000001 grams.]

[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

Proposed Amendments to HAR 11-54-8
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-8 Specific criteria for recreational areas. (a) In inland recreational waters (fresh waters only; of salinity less than or equal to 0.5 ppt):

(1) Enterococcus content shall not exceed a geometric mean of 33 per one hundred milliliters in not less than five samples which shall be spaced to cover a period between 25 and 30 days. No single sample shall exceed the single sample maximum of 89 CFU per 100 milliliters or the site-specific one-sided 82 per cent confidence limit. Inland recreational waters in which enterococcus content does not exceed the standard shall not be lowered in quality.

(2) At locations where sampling is less frequent than five samples per twenty-five to thirty days, no single sample shall exceed the single sample maximum nor shall the geometric mean of these samples taken during the 30-day period exceed 33 CFU per 100 milliliters.

(3) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing or wading areas. Warning signs shall be posted at locations where human sewage has been identified as temporarily contributing to the enterococcus count.

(b) In marine recreational waters[:] ,brackish and saline waters only, of salinity greater than 0.5 ppt and less than or equal to 35.5 ppt, to a depth of one hundred (100) feet and out to the three-mile regulatory limit of state waters:

(1) Within [300] 500 meters [(one thousand feet)] (one thousand, six hundred and forty feet) [of] seaward of the shoreline, at designated bathing beaches including natural public bathing or wading areas, enterococcus content shall not exceed a geometric mean of [seven] thirty-five per one hundred milliliters in not less than five samples which shall be spaced to cover a period between twenty-five and thirty days.

(2) Within 500 meters seaward of the shoreline, [N]no single sample shall exceed the single sample maximum of 100 CFU per 100 milliliters or the site-specific one-sided 75 per cent confidence limit. Marine recreational waters along sections of coastline where enterococcus content does not exceed the standard, as shown by the geometric mean test described above, shall not be lowered in quality.

(3) Seaward of 500 meters from the shoreline, in infrequently used brackish and saline recreational waters, enterococcus content shall not exceed thirty-

five CFU per 100 milliliters of brackish or saline waters. No single sample shall exceed the single sample maximum of 501 CFU per 100 milliliters, or the site-specific one-sided 95 per cent confidence limit.

[(2)](4) At locations where sampling is less frequent than five samples per twenty-five to thirty days, no single sample shall exceed the single-sample maximum of 100 CFU or 501 CFU, within or seaward of the 500-meter boundary for recreational waters, respectively; nor shall the geometric mean of these samples taken during the thirty-day period exceed [7] thirty-five CFU per 100 milliliters.

[(3)](5) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing or wading areas. Warning signs shall be posted at locations where human sewage has been identified as temporarily contributing to the enterococcus count.

[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)(Auth: 40 CFR Part 131, publ. 11/16/2004) (Imp: ???).

Proposed Amendments to HAR 11-54-9
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-9 Zones of mixing. (a) As used in this section "zones of mixing" means limited areas around outfalls and other facilities to allow for the initial dilution of waste discharges.

§11-54-9.1 Water quality certification. As used in sections 11-54-9.1.01 to 11-54-9.1.10:

"33 CFR" means the Code of Federal Regulations, Title 33, Corps of Engineers, Department of the Army, Department of Defense, revised as of July 1, 1998, unless otherwise specified.

"40 CFR" means the Code of Federal Regulations, Title 40, Protection of the Environment, revised as of July 1, [1998] 2004, unless otherwise specified.

"Act" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-483 and Public Law 97-117, 33 U.S.C. Section 1251 et. seq.

"Agent" means a duly authorized representative of the owner as defined in section 11-55-7(b).

"Department" means the state department of health.

"Director" means the director of the department or an authorized agent.

"Discharge" means the same thing as defined in Section 502(16) of the Act.

"Discharge of a pollutant" and "discharge of pollutants" means the same thing as defined in Section 502(12) of the Act.

"Duly authorized representative" means a person or position as defined in 40 CFR Section 122.22(b).

"HRS" means the Hawaii Revised Statutes.

"License or permit" means any permit, certificate, approval, registration, charter, membership, statutory exemption or other form of permission granted by an agency of the federal government to conduct any activity which may result in any discharge into navigable waters.

"Licensing or permitting agency" means any agency of the federal government to which a federal application is made for a "license or permit."

"Navigable waters" means the waters of the United States, including the territorial seas.

"Owner" means the person who owns any "facility" or "activity" which results in any discharge into navigable waters.

"Pollutant" means the same thing as defined in Section 502(6) of the Act.

"Territorial seas" means the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking

the seaward limit of inland waters, and extending seaward a distance of three miles.

"Water quality certification" or "certification" means a statement which asserts that a proposed discharge resulting from an activity will not violate applicable water quality standards[.] and the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Act. A water quality certification is required by Section 401 of the Act from any applicant for a federal license or permit to conduct any activity, including the construction or operation of facilities which may result in any discharge into navigable waters.

"Water quality certification application" means any forms provided by the director for use in obtaining the water quality certification.

"Water quality standards" means standards established pursuant to Section 10(c) of the Act, and state-adopted water quality standards for navigable waters which are not interstate waters.

"Waters of the United States" or "waters of the U.S." means:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate "wetlands";

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(A) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(B) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(C) Which are used or could be used for industrial purposes by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under this definition;

(5) Tributaries of waters identified in paragraphs (1) through (4) of this definition;

(6) The territorial sea; and

(7) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this definition. [Eff and comp **OCT 02 2004** 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)[Eff and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92; am and comp 04/17/00; am and comp [**OCT 02 2004**](Auth: HRS §§342D-4, 342D-5, 342D-53) (Imp: HRS §§342D-4, 342D-5, 342D-6)

Proposed Amendments to HAR 11-54-10
Hawaii State Department of Health
Environmental Planning Office
04-11-05

§11-54-10 Water quality analyses. [(a) Laboratory analysis shall be performed by a laboratory approved by the department.] [(b)] (a) Where applicable, analysis to determine compliance with these rules shall be by:

Parameter	Reference
Sample Collection (Phytoplankton and other Bioassays)	Standard Methods for the Examination of Water and Waste Water, twentieth edition, APHA
Sample Preservation and Holding Time, Bacteriological and Chemical Methodology	"Guidelines Establishing Test Procedures for Analysis of Pollutants," Federal Register, July 1, 1998 (40 CFR 136) and "Technical Amendments," [Federal Register, July 1, 1998 (40 CFR 136).]40 CFR 136, revised as of July 1, 2001. "A Manual of Chemical and Biological Methods for Seawater Analysis" T.R. Parsons, Y. Maita, and C.M. Lalli, 1984, Pergamon Press, New York. "Methods of Seawater Analysis", 2nd, Revised and Extended Edition, ed. by K. Grashof, M. Erhardt, K. Kremling, 1983. Verlag Chemie,
§11-54-10	Weinheim, Germany.
Toxicity Test	EPA/600/4-91/002 Short-Term Methods For Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, July 1994, or: EPA/600/4-90-027F Methods

	for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. Cincinnati, Ohio, EMSL, August 1995. or: EPA-600/4-91/003, Short-Term methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. ORD, Cincinnati, Ohio, July 1994.
Quality Control (Bacteriological and Biology) and Chemistry	EPA/600/4-79-019, Handbook for Analytical Quality Control in Water and Wastewater Laboratories, March 1979.
Kona Coast Area Specific Standards	Rationale for the Development of Area-Specific Water Quality Criteria for the West Coast of The Island of Hawaii and Procedures for Their Use. Hawaii State Department of Health. March 1997. or: As otherwise previously specified or approved by the director.

§11-54-11

[Eff 11/12/82; am and comp 10/6/84; am and comp 04/14/88; am and comp 01/18/90; am and comp 10/29/92, am and comp 04/17/00; am and comp **OCT 02 2004**] (Auth: HRS §§342D-1, 342D-4, 342D-5) (Imp: HRS §§342D-4, 342D-5)

CHAPTER 11-54 APPENDIX A
NUMERIC CRITERIA TABLES
04-11-05

- GUIDELINES -
CLASSIFICATION OF STATE SURFACE WATERS
04-11-05

Level 1: All surface waters must meet narrative criteria (11-54-4(a) and criteria for toxic chemicals and heavy metals (11-54-4(b))
Level 2 All water body types are identified in 11-54-2.
Level 3: All surface waters as classified as either inland or marine.
Level 4: All inland waters are fresh waters; all marine waters are either brackish or saline.
Level 5: Guidelines for using numeric criteria tables:

INLAND FRESH WATERS Fresh waters only Use Table 1, p. x for numeric criteria for freshwaters streams	**MARINE BRACKISH WATERS** Brackish Estuaries Other Than Pearl Harbor Use Table 2, p. x for numeric criteria for all estuaries other than Pearl Harbor	**MARINE BRACKISH WATERS** Brackish Coastal Waters; Not in Defined Estuaries Use Table 2, p. x for numeric criteria for brackish coastal waters not in estuaries	**MARINE SALINE WATERS** Saline Coastal Waters Use Table 3, p. x for numeric criteria for saline nearshore waters	***MARINE SALINE WATERS -** Transitional Oceanic Waters Use Table 4, p. x for numeric criteria for transitional oceanic waters
Salinity ≤ 0.5 ppt	Salinity > 0.5 to ≤ 30.0 ppt	Salinity > 0.5 to ≤ 30.0 ppt	Salinity > 30.0 to ≤ 34.9 ppt	Salinity > 34.9 to ≤ 35.5 ppt
Classes - 1a, 1b, 2	Classes - AA, A , depending of protective status of adjacent lands	Classes - AA, A; depending on protective status of adjacent lands.	Classes AA, A	Class A

*Recent open ocean data may be viewed at: http://hahana.soest.hawaii.edu/hot/hot-dogs/interface.html. The "HOTS" data from Aloha Station 2, 100 miles northeast of the islands.

- GUIDELINES -
CLASSIFICATION OF STATE SURFACE WATERS (continued)

Level 1: All surface waters must meet narrative criteria (11-54-4(a) and criteria for toxic chemicals and heavy metals (11-54-4(b)
Level 2: All water body types are identified in 11-54-2.
Level 3: All surface waters as classified as either inland or marine.
Level 4: All inland waters are fresh waters; all marine waters are either brackish or saline.
Level 5: Guidelines for using numeric criteria tables:

SITE-SPECIFIC CRITERIA FOR PEARL HARBOR Brackish Waters (Pearl Harbor Estuary Only)	***SITE-SPECIFIC CRITERIA FOR KONA (WEST) COAST OF ISLAND OF HAWAII** Brackish Coastal Waters Not in Defined Estuaries	****SITE-SPECIFIC CRITERIA FOR KONA (WEST) COAST OF ISLAND OF HAWAII** Saline Coastal Waters
Use Table 5, p. x, for Site-Specific Numeric Criteria for Pearl Harbor Estuary	Use Table 6, p x, for Site-Specific Numeric Criteria for Kona Coast, Island of Hawaii	Use Table 6, p x, for Site-Specific Numeric Criteria for Kona Coast, Island of Hawaii
Sal. > 0.5 to ≤ 30.0 ppt	Salinity > 0.5 to ≤ 30.0 ppt	Salinity > 30.0 ppt to ≤ 34.9 ppt
Class A	Classes - AA, or A; depending on protected status of adjacent lands.	Classes - AA, A

* At present, there are no water quality criteria established for brackish nearshore waters not in defined estuaries. As a temporary measure, we will require use of the numeric criteria for estuaries other that Pearl Harbor for these waters.

**Recent open ocean data may be viewed at: http://hahana.soest.hawaii.edu/hot/hot-dogs/interface.html. The "HOTS" data from Aloha Station 2, 100 miles northeast of the islands.

CHAPTER 11-54 APPENDIX A

Table 1
Specific Criteria for Streams

(a) All persons shall use this table for a:

1. Salinity ≤ 0.5 ppt.

(b) Required Dissolved Oxygen and Temperature ranges:

1. Dissolved Oxygen - Not less than 80 per cent saturation.
2. Temperature - Shall not exceed 30 degrees Celsius, as a function of recent rainfall events and elevation at the sampling sites.
3. pH range ≥ 5.5 to ≤ 8.0.

(c) Notes:

1. **Base flow (Lowflow) conditions - Means the sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced stream flows. Natural base flow is sustained largely by ground water discharge.
2. *Runoff elevated flow (Highflow) conditions - surface runoff from rain events has recently or is presently augmenting the stream flow.
3. L = liter
4. N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
5. ug = microgram or 0.000001 grams
6. Specific Conductance - Not more than three hundred micromhos/centimeter.
7. "Sample size (n)" means the number of measured values of one or more environmental parameters at a control station or project sampling station. (Note that three measurements per station are required for sampling under the site-specific criteria for the Kona (west) coast of the island of Hawaii).
8. Control stations and sampling stations must be in the same waterbody or coastal segment as the project site, and must be located such that exposure of the control stations to potential and/or actual project impacts is minimized. Sampling stations have the same definition as control stations, but are located within and on the

boundaries of the project site,and are intended to measure potential or actual project impacts.

9.All sampling and control stations must be geolocated.

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time
Total Nitrogen (ug N/L)	250.0* 180.0**	520.0* 380.0**
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	70.0* 30.0**	180.0* 90.0**
Total Phosphorus (ug P/L)	50.0* 30.0**	100.0* 60.0**
Total Suspended Solids (mg/L)	20.0* 10.0**	50.0* 30.0**
Turbidity (N.T.U.)	5.0* 2.0**	15.0* 5.5**

CHAPTER 11-54 APPENDIX A

Table 2
Criteria for all Estuaries Except Pearl Harbor, and for Brackish Coastal Waters

(a) All persons shall use this table for a:

1. Salinity range > 0.5 ppt to ≤ 30.0 ppt.

(b) Required Dissolved Oxygen and Temperature ranges:

1. Dissolved Oxygen - Not less than seventy-five per cent saturation.
2. Temperature range, except within Zones of Mixing approved by the department, shall be measured at the project site and at least three control stations on the boundary of the site, and shall remain within the range of control station temperatures.
3. pH < 7.6.

(c) Notes:

1. L = liter
2. N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
3. ug = microgram or 0.000001 grams
4. Oxidation - reduction potential (EH) - Shall not be less than-100 millivolts in the uppermost ten centimeters (four inches) of sediment.
5. "Sample size (n)" means the number of measured values of one or more environmental parameters at a control station or project sampling station. (Note that three measurements per station are required for sampling under the site-specific criteria for the Kona (west) coast of the island of Hawaii).
6. Control stations and sampling stations must be in the same waterbody or coastal segment as the project site, and must be located such that exposure of the control stations to potential and/or actual project impacts is minimized. Sampling stations have the same definition as control stations, but are located within and on the boundaries of the project site,and are intended to measure potential or actual project impacts.
7. All sampling and control stations must be geolocated.

Table 2 (cont.)

Criteria for all Estuaries Except Pearl Harbor, and for Brackish Coastal Waters

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time
Total Nitrogen (ug N/L)	200.00	350.00
Ammonia Nitrogen (ug NH_4-N/L)	6.00	10.00
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	8.00	25.00
Total Phosphorus (ug P/L)	25.00	50.00
Chlorophyll a (ug/L)	2.00	5.00
Turbidity (N.T.U.)	1.5	3.00

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Table 3
Criteria for all Saline Coastal Waters

(a) All persons shall use this table for a:

1. Salinity range from > 30.0 ppt to ≤ 34.9 ppt.

(b) Required Dissolved Oxygen and Temperature ranges:

1. Dissolved oxygen range ≥ 75 per cent saturation.
2. Temperature range, except within Zones of Mixing approved by the department, shall be measured at the project site and at least three control stations on the boundary of the project site, and shall remain within the range of control station temperatures.
3. pH ≥ 7.6.

(c) Notes:

1. k units = the ratio of light measured at the water's surface to light measured at a particular depth.
2. L = liter
3. Light Extinction Coefficient is only required for dischargers who have obtained a waiver pursuant to Section 301(h) of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1251), as amended, and are required by EPA to monitor it.
4. N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
5. ug = microgram or 0.000001 grams
6. "Sample size (n)" means the number of measured values of one or more environmental parameters at a control station or project sampling station. (Note that three measurements per station are required for sampling under the site-specific criteria for the Kona (west) coast of the island of Hawaii).
9. Control stations and sampling stations must be in the same waterbody or coastal segment as the project site, and must be located such that exposure of the control stations to potential and/or actual project impacts is minimized. Sampling stations have the same definition as control stations, but are located within and on the boundaries of the project site,and are intended to measure potential or actual project impacts.

9.All sampling and control stations must be geolocated.

Table 3
Criteria for all Saline Coastal Waters (cont.)

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time
Total Nitrogen (ug N/L)	110.00	180.00
Ammonia Nitrogen (ug NH_4-N/L)	2.50	5.00
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	3.50	10.00
Total Phosphorus (ug P/L)	16.00	30.00
Light Extinction Coefficient (k units)	0.10	0.30
Chlorophyll a ug/L)	0.15	0.50
Turbidity (N.T.U.)	0.20	0.50

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Table 4
Criteria for Transitional Oceanic Waters

(a) All persons shall use this table for a:

1. Salinity range from > 34.9 ppt to < 35.5 ppt.

(b) Required Dissolved Oxygen and Temperature ranges:

1. Dissolved Oxygen - Greater than or equal to eighty-five (85) per cent saturation.
2. Temperature range, except for within Zones of Mixing approved by the department, shall be measured at the project site and at least three control stations on the boundary of the site, and shall remain within the range of control station temperatures.
3. pH = 8.1 ±0.5.

(c) Notes:

1. L = liter
2. N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
3. ug = microgram or 0.000001 grams
4. "Sample size (n)" means the number of measured values of one or more environmental parameters at a control station or project sampling station. (Note that three measurements per station are required for sampling under the site-specific criteria for the Kona (west) coast of the island of Hawaii).
5. Control stations and sampling stations must be in the same waterbody or coastal segment as the project site, and must be located such that exposure of the control stations to potential and/or actual project impacts is minimized. Sampling stations have the same definition as control stations, but are located within and on the boundaries of the project site,and are intended to measure potential and/ or actual project impacts.
6. All sampling and control stations must be geolocated.

Table 4

Criteria for Transitional Oceanic Waters (continued)

Parameter	Geometric mean not to exceed the given value	Not to exceed The given value more than ten per cent of the time
Total Nitrogen (ug N/L)	50.00	80.00
Ammonia Nitrogen (ug NH_4-N/L)	1.50	3.00
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	2.00	3.50
Total Phosphorus (ug P/L)	12.00	21.00
Chlorophyll a (ug/L)	0.08	0.15
Turbidity (N.T.U.)	0.05	0.15

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Table 5
Site-Specific Criteria for Pearl Harbor Estuary

(a) All persons shall use this table for a:

1. Salinity range from > 0.5 ppt to ≤ 30.0 ppt.

(b) Required Dissolved Oxygen and Temperature ranges:

1. Dissolved Oxygen - Not less than seventy-five per cent saturation, determined as a function of water temperature and salinity; and
2. Temperature range, except within Zones of Mixing, temperature shall be measured at the project site and at least three control stations on the boundary of the site, and shall remain within the range of control station temperatures.
3. Min pH range < 6.8.

(c) Notes:

1. L = liter
2. N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
3. ug = microgram or 0.000001 grams
4. Oxidation - reduction potential (EH) - Shall not be less than-100 millivolts in the uppermost ten centimeters (four inches) of sediment.
5. "Sample size (n)" means the number of measured values of one or more environmental parameters at a control station or project sampling station. (Note that three measurements per station are required for sampling under the site-specific criteria for the Kona (west) coast of the island of Hawaii).
6. Control stations and sampling stations must be in the same waterbody or coastal segment as the project site, and must be located such that exposure of the control stations to potential and/or actual project impacts is minimized. Sampling stations have the same definition as control stations, but are located within and on the boundaries of the project site,and are intended to measure potential and/or actual project impacts.
7. All sampling and control stations must be geolocated.

Table 5
Site-Specific Criteria for Pearl Harbor Estuary (cont.)

Parameter	Geometric mean not to exceed the given value	Not to exceed the given value more than ten per cent of the time
Total Nitrogen (ug N/L)	300.00	550.00
Ammonia Nitrogen (ug NH_4-N/L)	10.00	20.00
Nitrate + Nitrite Nitrogen (ug [NO_3+NO_2]-N/L)	15.00	40.00
Total Phosphorus (ug P/L)	60.00	130.00
Chlorophyll a (ug/L)	3.50	10.00
Turbidity (N.T.U.)	4.00	8.00

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Table 6
Site-Specific Criteria for the Kona (west) Coast of the Island of Hawaii

(a) All persons shall use this table for a:

1. Salinity range from > 0.5 ppt to ≤ 34.9 ppt.

(b) Required Dissolved Oxygen and Temperature ranges:

1. Dissolved Oxygen - Not less than seventy-five (75) per cent saturation.
2. Temperature range, except for within Zones of Mixing approved by the department, shall be measured at the project site and at least three control stations on the boundary of the project, and shall remain within the range of control station temperatures.
3. pH < 7.6.

(c) Notes:

1. L = liter
2. N.T.U. = Nephelometric Turbidity Units. A comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity.
3. ug = microgram or 0.000001 grams
4. "Sample size (n)" means the number of measured values of one or more environmental parameters at a control station or project sampling station. (Note that three measurements per station are required for sampling under the site-specific criteria for the Kona (west) coast of the island of Hawaii).
5. Control stations and sampling stations must be in the same waterbody or coastal segment as the project site, and must be located such that exposure of the control stations to potential and/or actual project impacts is minimized. Sampling stations have the same definition as control stations, but are located within and on the boundaries of the project site,and are intended to measure potential or actual project impacts.
6. All sampling and control stations must be geolocated.

In areas along the Kona Coast where coastal marine water salinity is greater than 30.0 parts per thousand (ppt) the following specific criteria apply:

Table 6
Site-Specific Criteria for the Kona (west) Coast of the Island of Hawaii (cont.)

Parameter	Geometric mean not to exceed the given single value
Total Dissolved Nitrogen (ug N/L)	100.00
Nitrate + Nitrite Nitrogen (ug $[NO_3+NO_2]$-N/L)	4.50
Total Dissolved Phosphorus (ug P/L)	12.50
Phosphate (ug PO_4 - P/L)	5.00
Ammonia Nitrogen (ug NH_4 - N/L)	2.50
Chlorophyll a (ug/L)	0.30
Turbidity (N.T.U.)	0.10

* Specific criteria for Class A [embayments] brackish and saline nearshore waters apply to Honokohau Harbor and Kawaihae Harbor, see section 11-54-6(a)(3).

(ii) if coastal marine water salinity is less than or equal to [32.00] 30.00 parts per thousand the following parameters shall be related to salinity on the basis of a linear least squares regression equation:

$$Y = MX + B$$

where:
Y = parameter concentration(in ug/L)
X = salinity (in ppt)
M = regression coefficient (or "slope")
B = constant (or "Y intercept").
The absolute value of the upper 95 per cent confidence limit for the calculated sample regression coefficient (M) shall not exceed the absolute value of the following values:

Parameter	M
Nitrate and Nitrite Nitrogen (ug [NO3 + NO2]-N/L)	-31.92
Total Dissolved Nitrogen (ug N/L)	-40.35
Phosphate (ug PO4 - P/L)	-3.22
Total Dissolved Phosphorus (ug P/L)	-2.86

The specific criteria for ammonia nitrogen, chlorophyll a, and turbidity given in (i) above, also apply.

(iii) Parameter concentrations shall be determined along a horizontal transect extending seaward from a shoreline sample location using the following method: water samples shall be obtained at distances of 1, 10, 50, 100, and 500 meters from the shoreline sampling location. Samples shall be collected within one meter of the water surface and below the air-water interface. Dissolved nutrient samples shall be filtered through media with particle size retention of 0.7 um. This sampling protocol shall be replicated not less than three times on different days over a period not to exceed fourteen days during dry weather conditions. The geometric means of sample measurements for corresponding offshore distances shall be used for regression calculations.